

WHAT IS CLAIMED:

- 1 1. A method for use in a network element of a packet-based network, the method
2 comprising the steps of:
 - 3 storing failure information associated with the packet-based network and usage
4 information for a backup resource;
 - 5 upon receipt of a new demand, determining if the backup resource is shareable as a
6 function of the failure information and the usage information.
- 1 2. The method of claim 1 wherein the failure information is associated with links
2 of the packet-based network, the backup resource is a backup path, the usage information
3 is related to a bandwidth associated with the backup path, and the new demand has an
4 associated bandwidth, d .
- 1 3. The method of claim 2 wherein the determining step includes the steps of:
 - 2 determining, from the failure information, if a simultaneous failure can occur on
3 the backup path and a primary path; and
 - 4 if no simultaneous failure can occur, updating usage information for the backup
5 path as a function of the bandwidth d associated with the new demand.
- 1 4. The method of claim 3 wherein the updating step includes the step of
2 determining, from the updated usage information, if the backup path can support the new
3 demand such that if the new demand cannot be supported the new demand is rejected.
- 1 5. A network element for use in a packet-based network, the network element
2 comprising:
 - 3 a memory for storing failure information associated with the packet-based network
4 and usage information for a backup resource; and
 - 5 a processor, responsive to receipt of a new demand, for determining if the backup
6 resource is shareable as a function of the failure information and the usage information.
- 1 6. The network element of claim 5 wherein the failure information is associated

2 with links of the packet-based network, the backup resource is a backup path, the usage
3 information is related to a bandwidth associated with the backup path, and the new
4 demand has an associated bandwidth, d .

1 7. The network element of claim 6 wherein the processor determines if the backup
2 resource is shareable by determining, from the failure information, if a simultaneous failure
3 can occur on the backup path and a primary path, and, if no simultaneous failure can
4 occur, updating the usage information for the backup path as a function of the bandwidth
5 d associated with the new demand.

1 8. The network element of claim 7 wherein as part of the updating of the usage
2 information, the processor determines, from the updated usage information, if the backup
3 path can support the new demand such that if the new demand cannot be supported the
4 processor causes the new demand to be rejected.

1 9. A network element for use in a packet-based network, the network element
2 comprising:

3 a memory for storing failure information associated with a number of links of the
4 packet-based network;

5 a communications interface for coupling to a link that is a part of a backup path;
6 and

7 a processor, responsive to receipt of a new demand, for determining if the backup
8 path is shareable with the new demand as a function of the failure information and usage
9 information associated with the backup path.

1 10. The network element of claim 9 wherein the processor rejects the new demand
2 if the backup path and a primary path associated with the new demand are determined to
3 be capable of failing simultaneously from the failure information.

1 11. The network element of claim 9 wherein the processor rejects the new demand
2 if the backup path cannot support the new demand based upon the usage information.